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09/911,528

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ARGUMENT

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PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN THE APPLICATION OF:

**JAIME A. AMPUERO AUZA ET. AL.**

**CASE NO.: KP2310USNA**

**SERIAL NO.: 09/911,528**

**GROUP ART UNIT: 1771**

**FILED: JULY 24, 2001**

**EXAMINER: NORCA LIZ TORRES  
VELAZQUEZ**

**FOR: NONWOVEN MATERIAL FOR LOW FRICTION BEARING SURFACES**

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**ARGUMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**Introductory Comments**

Reconsideration is respectfully requested of the rejection of claims 1, 3-7 and 10-13 under the provisions of 35 USC 103(a) set forth in the Office action dated January 14, 2005. Claims 8, 9, 14 and 15 are withdrawn from consideration due to a restriction requirement. It is noted that these latter claims require the limitations of claim 1.

No claim has been amended or cancelled since all claims are considered to represent a patentable advance in the art.

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**Rejection Under 35 USC 103(a)**

Claims 1, 3-7 and 10-13 stand rejected under 35 USC 103(a) based on Tokarsky USP 4,698,267 in view of Hendren et al. (hereinafter Hendren) USP 4,866,578.

It is noted that the new grounds of rejection of Tokarsky in view of Hendren replaces an earlier final rejection of the same claims based on the same two patents, but in reversed order, namely Hendren in view of Tokarsky.

Paragraph 3 of the Office rejection initially sets forth in detail the disclosure and teachings of Tokarsky leading up to the following wording concerning a requirement in all claims directed to a fluoropolymer floc:

The reference further teaches that fluorocarbon resins may also be used where their special properties, e.g. low dielectric constant, low dielectric loss, and low moisture regain, are desired (Col. 3, lines 37-39).

While TOKARSKY recognizes the use of a fluoropolymer, it fails to teach the use of a fluoropolymer floc.

Initially, in response to the above quoted language, it is believed that the Office rejection places emphasis on the word fluoropolymer in Tokarsky. Yet, this publication is clear in its requirement of use of a binder resin for the high-density para-aramid papers limited to "fluorocarbon resins" in the following wording present on column 3, lines 30 to 43:

**Paper Binder Resins.**

The binder resins useful in the high density para-aramid papers of the present invention are preferably water dispersible thermosetting resins such as epoxy resins, phenolic resins, polyureas, polyurethanes, melamine formaldehyde resins, and polyesters.

...

Fluorocarbon resins may also be used where their special properties, e.g., low dielectric constant, low dielectric loss, and low moisture regain, are desired.

Use of binders such as fibrils or binder resins greatly facilitates the handling of the para-aramid papers during preparation of the papers and are essential when the papers are to be continuously impregnated with resin for the preparation of laminates.

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It is respectfully pointed out that a fluorocarbon resin is entirely different from fluoropolymer floc which is a requirement of all claims under prosecution.

Yet, it is believed that the Office position is premised on the fact that the wording of "fluoro" allows one of ordinary skill in the art to turn to the application of the secondary teachings of Hendren which likewise employ "fluoro" but in a floc rather than a resin.

The Office rejection initially sets forth the following for the disclosure of Hendren:

HENDREN et al. is directed to a high heat resistant oil-impregnable insulation board having a dielectric constant in mineral oil of less than 2.7. The board has 35-60 wt.% aromatic polyamide fibrous materials, preferably MPD-I and 40-65% PTFE fibrous materials (such as floc). (Col. 1, lines 51-57).

Then the Office makes the following statement of "the purpose disclosed by Hendren ... in the pertinent art of Tokarsky" as follows:

Since both references are directed to fibrous materials that include floc, pulp and fibrils, the purpose disclosed by HENDREN would have been recognized in the pertinent art of TOKARSKY.

In the event the Office rejection is maintained, a request is hereby made of the Examiner for clarification of the wording "the purpose disclosed by Hendren". There is no antecedent for "the purpose". There are a series of requirements in Hendren, namely (1) high heat resistance, (2) oil impregnable and (3) insulation... having a dielectric constant in mineral oil of less than 2.7". Is it one or all of these properties? The Office rejection sets forth a statement concerning the disclosure of Hendren following by "the purpose" of this publication and clarification is hereby requested.

The Office rejection continues in the following conclusion in the combination of Tokarsky and Hendren:

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the sheet material of TOKARSKY and provide with a fluoropolymer floc material with the motivation of producing a material that has a high heat resistance while also having low dielectric constant as disclosed by HENDREN. (Col. 2, lines 22-24).

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This combination of publications is respectfully traversed for a gamut of reasons.

Initially, the Office rejection is premised on introducing a fluoropolymer floc material of Hendren "with the motivation of producing a material that has a high heat resistance while also having a low dielectric constant as disclosed by Hendren (Col. 2, lines 22-24)".

Initially in traversal, it is respectfully but emphatically pointed out that the Office action presents a skewed, partial reading of Hendren. The "high heat resistance" and "low dielectric constant" referenced in the Office action concerning Hendren fails to mention one important fact, namely a requirement of these properties in an oil environment. It is respectfully but emphatically pointed out that Hendren requires the property of "oil impregnation" of which the Office position is silent. Furthermore, the Office action is silent as to any reference to mineral oil which Hendren sets forth as an environment for his discovery. The following wording is present on column 1, lines 51 to 53:

A HIGH HEAT RESISTANT OIL-  
IMPREGNATABLE INSULATING BOARD  
HAVING A DIELECTRIC CONSTANT IN  
MINERAL OIL OF LESS THAN 2.7 HAS NOW  
BEEN DISCOVERED. (emphasis added)

Furthermore, on this point of exposure to mineral oil and other oils, the following wording is present on column 2, lines 31 to 35:

THE INSULATING BOARD OF  
THE INVENTION, IN THE PRESENCE  
OF THE OILS USED IN  
TRANSFORMERS, IS SUITABLE FOR  
PROLONGED USE AT TEMPERATURES  
UP TO ABOUT 200°C., WHICH IS  
SOMEWHAT HIGHER THAN MINERAL  
OIL, IS SUITABLE. SPECIALTY OILS  
SUITABLE FOR USE AT THIS  
TEMPERATURE ARE AVAILABLE.  
(emphasis added)

So to summarize this point, the Office rejection is premised on two properties of Hendren but failing to point out a third and the environment, namely oil impregnation and exposure to oil used in transformers.

Also, as a further point, the publications of Tokarsky and Hendren are dissimilar. Tokarsky is directed to a paper while Hendren is directed to a board.

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For purposes of illustration of a difference in thickness between a paper (of Tokarsky) and a board (of Hendren), attention is respectfully directed to examples of both these publications. In Tables I, II, III of Tokarsky are provided sheet thickness, i.e. paper thickness, ranging from about 4.5 to about 6.9 mils (0.136 to 0.174 mm). In order to form a non-paper material, Tokarsky is required to employ lamination techniques such as employing 10 sheets, i.e. 10 papers, which is also shown in the Tables (with Example L having a thickness of 69.9 mils (1.775 mm). In contrast, Hendren forms a heat resistant oil impregnable board with the example demonstrating an appropriate thickness of 98 mils.

Therefore, to summarize this grounds of traversal, the papers of Tokarsky and the boards of Hendren are entirely different articles with different materials of formation. While Tokarsky directly discloses techniques to form a laminate, nevertheless the starting paper is present in multiple layers employing resin bonding to obtain a low coefficient of thermal expansion. This thermal expansion property of a resin bonded paper of Tokarsky obviously differs from an oil impermeable property of Hendren.

Since the Office rejection references column 2, lines 22-24 of Hendren, it is reproduced as follows (but continuing to line 25):

Combining MPD-I fibrids, with or without MPD-I floc, and bleached PTFE floc or pulp provides a high heat resistant insulating board with a dielectric constant more closely approaching the dielectric constant for oil.

So this quotation relied upon in the Office rejection is directed to "approaching the dielectric constant for oil" using a combination of "MPD-I fibrids" and "bleached PTFE floc or pulp".

The Examiner is reminded of the earlier Declaration of Gary Hendren (resulting in removal of the previous final rejection) which set forth the purpose of fibrids in the Hendren publication (i.e. U.S. 4,866,576) namely:

That, for each disclosure of "fibrids" in U.S. Patent 4,885,578, I directly state that the purpose in use of fibrids was as a binder within the environment of the disclosure of this patent.

The Examiner's attention is respectfully directed to column 1, line 61 of Hendren which sets forth that "at least 35 wt %" MPD-I fibrids are required. Since the fibrids function as a binder, the clear requirement of Hendren is that at least 35 wt % binder is needed (in the language of the Office rejection) "with the motivation of producing a material that has a high resistance while also having a low dielectric constant as disclosed by Hendren (Col. 2, lines 22-24)".

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Yet, in answer and traversal of the Office position, the present claims require the presence of a binder "up to about 20% by weight of the saturable non-woven material". In contrast, Hendren requires at least 35% fibrils (as binder) in a closest comparison.

It is respectfully submitted that the combination of publications must fail since the properties required on column 2, lines 22 to 24 of Hendren (cited in the Office rejection) requires substantially more binder than required by all claims under prosecution. Furthermore, in the combination of publications of Tokarsky with Hendren, the Tokarsky publication teaches (1) no binder and (2) at more than 25 percent by weight the binder "is not generally retained by the fibers" in the following on column 3, lines 44 to 50:

When batch methods of paper preparation are used, the binder may be omitted at the expense of ease of handling. When continuous papermaking processes are used, binder at less than 5 percent, by weight, of total solids provides inadequate effect and at more than 25 percent, by weight, of total solids is not generally retained by the fibers.

Yet another reason is present why one of ordinary skill in the art would not combine Tokarsky with Hendren. As only evidenced by the title of Tokarsky, namely "High Density Para-Aramid Papers", Tokarsky requires a high density paper as a final article. Again "high density" is required.

In contrast, as evidenced by the title of Hendren, namely "High Heat Resistant Oil-Impregnable Electrical Insulating Board" Hendren discloses oil impregnation in a board. A high density paper vs an oil-impregnable board (with sufficient porosity) are two divergent properties and two divergent articles.

#### **Traversal Following Format of Office Rejection**

In the above discussion, applicants have traversed the Office position along the format set forth in a rejection of the claims. However, to be redundant, it may be helpful in understanding applicants' position that numerous reasons are present why the combination of Tokarsky and Hendren is improper. Accordingly, the next section sets forth this position in detail.



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**Numerous Reasons Are Present Why  
One of Ordinary Skill in The Art Would  
Not Combine The Disclosure and Teachings of  
Tokarsky with Hendren**

As set forth in the above heading there are a number of reasons why one of ordinary skill in the art would not combine the disclosure and teachings of Tokarsky with Hendren.

**Reason # 1**

Tokarsky is directed to papers; in contrast Hendren is directed to boards. Only a reading of the titles of the patents illustrate this difference. The title of Tokarsky is "High Density Para-Aramid Papers" while the title of Hendren is "High Heat Resistant Oil-Impregnable Electrical Insulating Board".

**Reason #2**

The properties of the paper of Tokarsky differ from the properties of the boards of Hendren. Again, only a reading of the titles of the patents illustrates this difference. Tokarsky solves a problem to obtain a high density paper; in contrast – Hendren solves a problem in obtaining high heat resistance combined with an ability of being oil impregnable in a board.

**Reason #3**

The process steps of article formation differ in Tokarsky and Hendren (which are due in part to the materials employed). Tokarsky discusses considerations in use of paper machines, illustratively on column 2, lines 46 to 58 and column 3, lines 15 and 16 to obtain a final dry paper. In contrast, Hendren can employ a paper making process with water removal to a level of 70-90% water (i.e. 70-90% water remains) in forming a web, following by stacking wet webs followed by subjecting the wet webs to a pressure of 5-106 kg/cm<sup>2</sup> and a temperature of 125°-190°C. Attention is respectfully directed to column 1, lines 63 to column 2, line 5 of Hendren.

**Reason #4**

The materials differ to form the papers of Tokarsky and the boards of Hendren. To pick only one material, namely a binder, Tokarsky discloses no binder is necessary in a batch process and not more than 25% by weight of binder in a continuous process since additional binder "is not generally retained by the fibers". Attention is respectfully directed to column 3, lines 44 to 50 of Tokarsky. In contrast, Hendren employs a binder in a range of 35-60 wt %,



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i.e. at least 10% higher in the closest comparison to Tokarsky. This comparison from Hendren is based on the fibril content and it will be recalled that the Hendren Declaration of record states:

That, for each disclosure of "fibrils" in U.S. Patent 4,886,578, I directly state that the purpose in use of fibrils was as a binder within the environment of the disclosure of this patent.

**Reason #5**

As in Reason #4, the materials differ to form the papers of Tokarsky and the boards of Hendren. It is possible to continue with reasons after reason why the materials differ due to end uses in a paper as opposed to a board. However, to put an end to belaboring the point, it may be helpful to discuss the fluorine-containing material in Hendren (which the Office rejection requires to combine and substitute in Tokarsky).

Hendren, for a property of high heat resistance and oil impregnation, requires polytetrafluoroethylene (i.e. PTFE). Hendren discusses that ordinary PTFE is not suitable. Therefore, the preferred PTFE is bleached. However, what is also critical is the PTFE is present in an amount in a range of 40-65 wt%, i.e. present in a significant amount of the final board. Attention is respectfully directed to column 1, line 55 of Hendren. An ability to have oil impregnation with a range of 40-65% PTFE in a board of Hendren is totally non-analogous to a high density paper of Tokarsky.

**Reason #6**

Even in a closest comparison, a final article of Tokarsky differs from a final article of Hendren in end use applications. A final article of Tokarsky can be in preparation of an electrical circuit board substrate such as disclosed on column 29 to 31. In contrast, a final article of Hendren can be for an insulating board not only having high heat resistance but also having a dielectric constant approaching the dielectric constant for oil suitable for exposure to oils in transformers. Obviously, a circuit board differs from oil-impregnable electrical insulating board for oil contact in a transformer.

**Reason #7**

Formation of a multilayer layer laminate of papers of Tokarsky requires different materials and a different process compared to preparation of the boards of Hendren.

Tokarsky, in the examples, discloses preparation of laminates from previously prepared high density papers. Use of completely dried papers is required (see column 5, lines 48 and 49) prior to autoclaving with 10 sheets of paper and an epoxy resin (see column 6, lines 5 to 30). Obviously, the Tokarsky formation – and most importantly the materials

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involved in a paper – totally differs from a board of Hendren. Hendren forms a wet web having 70-90% water prior web stacking and subjecting to defined pressure and temperature in board formation.

#### **Summary of Numerous Reasons**

In the above discussions, seven distinct reasons have been set forth why Tokarsky cannot be combined with Hendren. More reasons can be set forth in a discussion of differences in (a) a paper vs a board, (b) final properties required in the paper vs the final properties required in the board, (c) necessary materials to obtain the final properties of a paper vs a board, and (d) necessary materials to obtain processing requirements in forming a paper vs forming a board.

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**Summary**

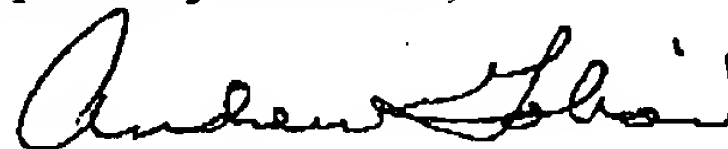
In the above discussion of the Office rejection, numerous grounds of traversal have been set forth. Also, in the event the Office rejection is maintained, clarification of the Office rejection has been requested.

**Reconsideration of Restriction Requirement**

Also, with allowance of claims 1, 3-7 and 10-13, reconsideration and withdrawal of the restriction requirement is requested. The non-elected claims 8, 9, 14 and 15 incorporate the limitations of specific claims under prosecution.

A notice of allowance is solicited.

Respectfully submitted,



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